

Aluminum electrolytic capacitors

Capacitors with screw terminals - accessories

 Series/Type:
 B44020, B44030

 Date:
 December 2019

© TDK Electronics AG 2019. Reproduction, publication and dissemination of this publication, enclosures hereto and the information contained therein without TDK Electronics' prior express consent is prohibited.



Capacitors with screw terminals

Capacitors with screw terminals - accessories

Please read *Cautions and warnings* and *Important notes* at the end of this document.

B44020, B44030



Capacitors with screw terminals – accessories

Capacitors with screw terminals - accessories

Basic accessories

One packing unit contains accessories for 16 capacitors.

For terminals			Screw	Washer for screw	
				d ₂	
				KAL1712-L-E	
Thread d1	d2 mm	Toothed washers	Screws	Maximum torque	Ordering code
M5	5.3	A 5.1 DIN 6797	DIN 7985/ ISO 7045-M5 x 10-5.6-Z I = 10 mm	2.5 Nm thread depth $t \ge 8 mm$	B44020J0500B000
M6	6.4	A 6.4 DIN 6797	DIN 7985/ ISO 7045-M6 x 12-5.6-Z I = 12 mm	$\begin{array}{l} 4.0 \text{ Nm} \\ \text{thread depth} \\ \text{t} \geq 9.5 \text{ mm} \end{array}$	B44020J0600B000

For threaded stud Nut Washer for nut 12.5 M12 KAL1713-U-E Thread For Toothed Nuts Maximum Ordering code terminal washers torque M12 M5 J 12.5 DIN 6797 Hex nut BM 12 DIN 439 10 Nm B44020J0500B012 M12 M6 J 12.5 DIN 6797 Hex nut BM 12 DIN 439 10 Nm B44020J0600B012

Please read *Cautions and warnings* and *Important notes* at the end of this document.



Capacitors with screw terminals - accessories

Additional accessories for capacitors with mounting stud on capacitor base

Insulating washer made of hostalen						
Capacitor	Thread	Dimensional drawing	Diameter d	Ordering code		
diameter	size		mm			
			$d_1 - 0.5 = 51$			
51 6 mm	M12	5.	$d_2 - 0.5 = 31$			
51.0 11111			$d_3 \pm 0.3 = 21.5$	D44020D0000D031		
			$d_4 \pm 0.2 = 13$			
	M12		$d_1 - 0.5 = 63.5$			
61.2 mm		R0.5 d ₂	$d_2 - 0.5 = 43.5$			
04.2 11111				$d_3 \pm 0.3 = 21.5$	D44020D0000D004	
		d	$d_4 \pm 0.2 = 13$			
	M12	R0.5	$d_1 - 0.5 = 76$			
76.0 mm			$d_2 - 0.5 = 56$	R44020R0006R076		
70.9 11111			$d_3 \pm 0.3 = 21.5$	D44020D0000D070		
			$d_4 \pm 0.2 = 13$			
00.0 mm			$d_1 - 0.5 = 89$			
	M12	<u>↓</u> . <u></u> <u>+</u> .	$d_2 - 0.5 = 69$	R44020R0006R000		
30.0 mm		KAI 1549-1	$d_3 \pm 0.3 = 21.5$	D44020D0000D090		
		NAL 1949-1	$d_4 \pm 0.2 = 13$			

Only for capacitors with threaded stud and without insulated base

Reinforced nylon cap nut

Capacitor diameter	Thread size	Dimensional drawing	Ordering code
> 40 mm	M12 ¹⁾ width across flats 19 mm	Ø30 0-54 KAL0349-1 Ø22±0.3	B44020J0006B012
		C.O-54-	B44020J0007B012

1) Maximum torque M12: 7.0 Nm for mounting thread length \ge 13 mm; 5.0 Nm for mounting thread length \ge 10 mm



Capacitors with screw terminals - accessories

Mounting instructions

Insulated mounting with washer and cap nut (for capacitors with threaded stud and without insulated base):



Mounting stud has the same potential as the negative terminal. Attention must be paid on any relevant regulations (e.g. VDE, BSA or UL).

Ring clip mounting

Ring clips are primarily used for upright mounting of screw terminal and photoflash capacitors. The ring clips are corrosion protected and are RoHS-compatible.

It is recommended to insert an additional insulating strip between capacitor and ring clip to avoid any risk of damage due to edges from the clip. The strip is included in delivery. For ordering code, see the following table. Attention must be paid to any relevant regulations (e.g. VDE, BSA or UL).

Capacitors with screw terminals $-\ accessories$

d	h₁ mm	h ₂	Ring clip version	Ordering code with insulating strip
51.6	22	15	10.5 120° 120° KAL0345-3	B44030J0051B000 (insulating strip length: 325 mm)
64.3	29	19	10.5 10.5 120° 120° KAL0346-B	B44030J0064B000 (insulating strip length: 420 mm)
76.9	29	19	10.5 10.5 120° 120° KAL0347-J	B44030J0075B000 (insulating strip length: 495 mm)

99

B44020, B44030

Capacitors with screw terminals - accessories

d	h₁ mm	h ₂	Ring clip version	Ordering code with insulating strip
90.0	29	19	35° 60° 35° 60° 50.8 50.8 56.5 KAL1398-Y	B44030J0090B000 (insulating strip length: 585 mm)

Clamp mounting

Screw terminal capacitors without threaded stud and with a diameter \geq 64.3 mm can also be mounted with ring clamps. Clamp mounting offers the following advantages:

- Optimum heat transfer between capacitor base and board due to pressure contact
- High vibration resistance
- Electrically insulated material

Dimensional drawing

- ¹) Length of screw depends on application.
- ²) The screws have to be tightened uniformly and crosswise until the fixing part rests flatly on the board.
- ³) Tubular rivets included in delivery package.

General hints for mounting: If required, the four fixation parts can be cut out from the common carrier ring and mounted separately.

Dimensions and ordering codes

Capacitor	d ₁ ±0.2	b	Ordering code
diameter d	mm	mm	
64.3 mm	87	104	B44030A0165B000
76.9 mm	99	116	B44030A0175B000
90.0 mm	112	130	B44030A0190B000

Screws are not included in the delivery package.

Capacitors with screw terminals – accessories

Mounting set (ring clamps)

- Protects the capacitor against tilt and the terminals from mechanical stress
- Fits for different capacitor length
- Electrically insulated clamping material

Dimensional drawing

Dimensions and ordering codes

Capacitor	\emptyset_{min}	Ordering code
diameter d		
76.9 mm	84 mm	B44030A0375B000
90.0 mm	96.5 mm	B44030A0390B000

<u>I</u> %

KAL1702-E-E

ø83

Please read Cautions and warnings and Important notes at the end of this document.

Capacitors with screw terminals – accessories

Cautions and warnings

Personal safety

The electrolytes used have been optimized both with a view to the intended application and with regard to health and environmental compatibility. They do not contain any solvents that are detrimental to health, e.g. dimethyl formamide (DMF) or dimethyl acetamide (DMAC). Furthermore, some of the high-voltage electrolytes used are self-extinguishing.

As far as possible, we do not use any dangerous chemicals or compounds to produce operating electrolytes, although in exceptional cases, such materials must be used in order to achieve specific physical and electrical properties because no alternative materials are currently known. We do, however, restrict the amount of dangerous materials used in our products to an absolute minimum.

Materials and chemicals used in our aluminum electrolytic capacitors are continuously adapted in compliance with the TDK Electronics Corporate Environmental Policy and the latest EU regulations and guidelines such as RoHS, REACH/SVHC, GADSL, and ELV.

MDS (Material Data Sheets) are available on our website for all types listed in the data book. MDS for customer specific capacitors are available upon request. MSDS (Material Safety Data Sheets) are available for our electrolytes upon request.

Nevertheless, the following rules should be observed when handling aluminum electrolytic capacitors: No electrolyte should come into contact with eyes or skin. If electrolyte does come into contact with the skin, wash the affected areas immediately with running water. If the eyes are affected, rinse them for 10 minutes with plenty of water. If symptoms persist, seek medical treatment. Avoid inhaling electrolyte vapor or mists. Workplaces and other affected areas should be well ventilated. Clothing that has been contaminated by electrolyte must be changed and rinsed in water.

Capacitors with screw terminals - accessories

Product safety

The table below summarizes the safety instructions that must be observed without fail. A detailed description can be found in the relevant sections of chapter "General technical information".

Торіс	Safety information	Reference
		chapter "General technical information"
Polarity	Make sure that polar capacitors are connected with the right polarity.	1 "Basic construction of aluminum electrolytic capacitors"
Reverse voltage	Voltages of opposite polarity should be prevented by connecting a diode.	3.1.6 "Reverse voltage"
Mounting position of screw- terminal capacitors	Screw terminal capacitors must not be mounted with terminals facing down unless otherwise specified.	11.1. "Mounting positions of capacitors with screw terminals"
Robustness of terminals	The following maximum tightening torques must not be exceeded when connecting screw terminals: M5: 2.5 Nm M6: 4.0 Nm	11.3 "Mounting torques"
Mounting of single-ended capacitors	The internal structure of single-ended capacitors might be damaged if excessive force is applied to the lead wires. Avoid any compressive, tensile or flexural stress. Do not move the capacitor after soldering to PC board. Do not pick up the PC board by the soldered capacitor. Do not insert the capacitor on the PC board with a hole space different to the lead space specified.	11.4 "Mounting considerations for single-ended capacitors"
Soldering	Do not exceed the specified time or temperature limits during soldering.	11.5 "Soldering"
Soldering, cleaning agents	Do not allow halogenated hydrocarbons to come into contact with aluminum electrolytic capacitors.	11.6 "Cleaning agents"
Upper category temperature	Do not exceed the upper category temperature.	7.2 "Maximum permissible operating temperature"
Passive flammability	Avoid external energy, e.g. fire.	8.1 "Passive flammability"

Capacitors with screw terminals – accessories

Торіс	Safety information	Reference chapter "General technical information"
Active flammability	Avoid overload of the capacitors.	8.2 "Active flammability"
Maintenance	Make periodic inspections of the capacitors. Before the inspection, make sure that the power supply is turned off and carefully discharge the capacitors. Do not apply excessive mechanical stress to the capacitor terminals when mounting.	10 "Maintenance"
Storage	Do not store capacitors at high temperatures or high humidity. Capacitors should be stored at +5 to +35 °C and a relative humidity of \leq 75%.	7.3 "Shelf life and storage conditions"
		Reference chapter "Capacitors with screw terminals"
Breakdown strength of insulating sleeves	Do not damage the insulating sleeve, especially when ring clips are used for mounting.	"Screw terminals – accessories"

Display of ordering codes for TDK Electronics products

The ordering code for one and the same product can be represented differently in data sheets, data books, other publications, on the company website, or in order-related documents such as shipping notes, order confirmations and product labels. The varying representations of the ordering codes are due to different processes employed and do not affect the specifications of the respective products.

Detailed information can be found on the Internet under

www.tdk-electronics.tdk.com/orderingcodes.

99)

B44020, B44030

Capacitors with screw terminals - accessories

Symbols and terms

Symbol	English	German
С	Capacitance	Kapazität
C _R	Rated capacitance	Nennkapazität
Cs	Series capacitance	Serienkapazität
C _{S,T}	Series capacitance at temperature T	Serienkapazität bei Temperatur T
C _f	Capacitance at frequency f	Kapazität bei Frequenz f
d	Case diameter, nominal dimension	Gehäusedurchmesser, Nennmaß
d _{max}	Maximum case diameter	Maximaler Gehäusedurchmesser
ESL	Self-inductance	Eigeninduktivität
ESR	Equivalent series resistance	Ersatzserienwiderstand
ESR_{f}	Equivalent series resistance at frequency f	Ersatzserienwiderstand bei Frequenz f
ESR_{T}	Equivalent series resistance at temperature T	Ersatzserienwiderstand bei Temperatur T
f	Frequency	Frequenz
I	Current	Strom
I _{AC}	Alternating current (ripple current)	Wechselstrom
$I_{AC,RMS}$	Root-mean-square value of alternating current	Wechselstrom, Effektivwert
I _{AC,f}	Ripple current at frequency f	Wechselstrom bei Frequenz f
I _{AC,max}	Maximum permissible ripple current	Maximal zulässiger Wechselstrom
I _{AC,R}	Rated ripple current	Nennwechselstrom
I _{leak}	Leakage current	Reststrom
I _{leak,op}	Operating leakage current	Betriebsreststrom
I	Case length, nominal dimension	Gehäuselänge, Nennmaß
I _{max}	Maximum case length (without terminals and mounting stud)	Maximale Gehäuselänge (ohne Anschlüsse und Gewindebolzen)
R	Resistance	Widerstand
R _{ins}	Insulation resistance	Isolationswiderstand
R _{symm}	Balancing resistance	Symmetrierwiderstand
Т	Temperature	Temperatur
ΔT	Temperature difference	Temperaturdifferenz
T _A	Ambient temperature	Umgebungstemperatur
T _c	Case temperature	Gehäusetemperatur
Т _в	Capacitor base temperature	Temperatur des Gehäusebodens
t	Time	Zeit
Δt	Period	Zeitraum
t _b	Service life (operating hours)	Brauchbarkeitsdauer (Betriebszeit)

Capacitors with screw terminals - accessories

Symbol	English	German
V	Voltage	Spannung
V _F	Forming voltage	Formierspannung
V_{op}	Operating voltage	Betriebsspannung
V _R	Rated voltage, DC voltage	Nennspannung, Gleichspannung
Vs	Surge voltage	Spitzenspannung
X _c	Capacitive reactance	Kapazitiver Blindwiderstand
XL	Inductive reactance	Induktiver Blindwiderstand
Z	Impedance	Scheinwiderstand
Z _T	Impedance at temperature T	Scheinwiderstand bei Temperatur T
$tan \delta$	Dissipation factor	Verlustfaktor
λ	Failure rate	Ausfallrate
ε ₀	Absolute permittivity	Elektrische Feldkonstante
ε _r	Relative permittivity	Dielektrizitätszahl
ω	Angular velocity; $2 \cdot \pi \cdot f$	Kreisfrequenz; $2 \cdot \pi \cdot f$

Note

All dimensions are given in mm.

The following applies to all products named in this publication:

- 1. Some parts of this publication contain statements about the suitability of our products for certain areas of application. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. We nevertheless expressly point out that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application. As a rule, we are either unfamiliar with individual customer applications or less familiar with them than the customers themselves. For these reasons, it is always ultimately incumbent on the customer to check and decide whether a product with the properties described in the product specification is suitable for use in a particular customer application.
- 2. We also point out that in individual cases, a malfunction of electronic components or failure before the end of their usual service life cannot be completely ruled out in the current state of the art, even if they are operated as specified. In customer applications requiring a very high level of operational safety and especially in customer applications in which the malfunction or failure of an electronic component could endanger human life or health (e.g. in accident prevention or lifesaving systems), it must therefore be ensured by means of suitable design of the customer application or other action taken by the customer (e.g. installation of protective circuitry or redundancy) that no injury or damage is sustained by third parties in the event of malfunction or failure of an electronic component.
- 3. The warnings, cautions and product-specific notes must be observed.
- 4. In order to satisfy certain technical requirements, some of the products described in this publication may contain substances subject to restrictions in certain jurisdictions (e.g. because they are classed as hazardous). Useful information on this will be found in our Material Data Sheets on the Internet (www.tdk-electronics.tdk.com/material). Should you have any more detailed questions, please contact our sales offices.
- 5. We constantly strive to improve our products. Consequently, the products described in this publication may change from time to time. The same is true of the corresponding product specifications. Please check therefore to what extent product descriptions and specifications contained in this publication are still applicable before or when you place an order. We also reserve the right to discontinue production and delivery of products. Consequently, we cannot guarantee that all products named in this publication will always be available. The aforementioned does not apply in the case of individual agreements deviating from the foregoing for customer-specific products.
- 6. Unless otherwise agreed in individual contracts, all orders are subject to our General Terms and Conditions of Supply.

Important notes

- 7. Our manufacturing sites serving the automotive business apply the IATF 16949 standard. The IATF certifications confirm our compliance with requirements regarding the quality management system in the automotive industry. Referring to customer requirements and customer specific requirements ("CSR") TDK always has and will continue to have the policy of respecting individual agreements. Even if IATF 16949 may appear to support the acceptance of unilateral requirements, we hereby like to emphasize that only requirements mutually agreed upon can and will be implemented in our Quality Management System. For clarification purposes we like to point out that obligations from IATF 16949 shall only become legally binding if individually agreed upon.
- 8. The trade names EPCOS, CeraCharge, CeraDiode, CeraLink, CeraPad, CeraPlas, CSMP, CTVS, DeltaCap, DigiSiMic, ExoCore, FilterCap, FormFit, LeaXield, MiniBlue, MiniCell, MKD, MKK, MotorCap, PCC, PhaseCap, PhaseCube, PhaseMod, PhiCap, PowerHap, PQSine, PQvar, SIFERRIT, SIFI, SIKOREL, SilverCap, SIMDAD, SiMic, SIMID, SineFormer, SIOV, ThermoFuse, WindCap are trademarks registered or pending in Europe and in other countries. Further information will be found on the Internet at www.tdk-electronics.tdk.com/trademarks.

Release 2018-10

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

EPCOS / TDK:

 B44020J0006B008
 B44020J0006B012
 B44020J0007B012
 B44030A0165B000
 B44030A0175B000

 B44030A0190B000
 B44030A0375B000
 B44030A0390B000
 B44030J0036B000
 B44030J0051B000

 B44030J0064B000
 B44030J0075B000
 B44030J0090B000
 B44020B0006B051
 B44020B0006B076

 B44020J0500B000
 B44020J0600B000
 B44020J0600B002
 B44020J0600B012

ООО "ЛайфЭлектроникс"

ИНН 7805602321 КПП 780501001 Р/С 40702810122510004610 ФАКБ "АБСОЛЮТ БАНК" (ЗАО) в г.Санкт-Петербурге К/С 3010181090000000703 БИК 044030703

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.

Тел: +7 (812) 336 43 04 (многоканальный) Email: org@lifeelectronics.ru

www.lifeelectronics.ru